



January 21, 2015

KDHE INTERNAL DIRECTIVE 1101.1

Subject: Policy: Guidelines for Addressing Harmful Algal Blooms in Kansas Recreational Waters

1. PURPOSE.

Protecting the public's health, safety and welfare as well as the environment is the mission of KDHE. Harmful Algal Blooms (HAB) present unique difficulties in health risk assessment determination. This policy considers health and environmental risks as well as the economic impact on resources within our agency. The basis for this policy is the epidemiologic and scientific study of HAB data collected by KDHE in Kansas and the analysis of established scientific and medical research including studies conducted by the World Health Organization (WHO).

2. DISCUSSION.

Cyanobacteria, also known as blue-green algae, can produce toxins in recreational waters and have been implicated in human and animal illness in Kansas. The threat to health is related to the prevalence of cyanotoxins and cyanobacterial cell concentrations in recreational water and corresponding contact with or accidental ingestion of the cyanobacteria cells or cyanotoxins. During a HAB, those most at risk when exposed are small children. Actual acute exposures have demonstrated that there is a higher incidence of illness among children that suggest risk calculations based on data from adults or animal studies may not be sufficient to protect children. Other susceptible sub-populations include those with compromised immune systems. Even though the effects of microcystin on persons with weakened immune systems are not yet fully understood, there is enough information to raise concern. The most common complaints after recreational exposure to cyanobacteria and associated toxins include vomiting, diarrhea, skin rashes, eye irritation and respiratory symptoms. As the concentration of cyanobacterial cells increases the probability of adverse health effects also increases.

3. PROCEDURES.

KDHE performs sampling of recreational bodies of water for cyanobacteria once alerted to a potential bloom. KDHE has the capability to test for microcystin toxin and to quantify and identify the type of cyanobacteria present. When a HAB has been properly identified in a Kansas public lake, KDHE will issue either a Public Health Watch or Public Health Warning, dependent on the level of risk associated with the

HAB as determined through water sampling and testing. The issuing of a Public Health Watch or Public Health Warning is based on the concentration of microcystin toxin or cyanobacteria cell counts.

4. ACTION:

The primary distinctions between a Public Health Watch and a Public Health Warning are:

- a. the level of risk that needs to be communicated to the public; and
- b. recommended actions to the governing authority of the affected body of water to discourage exposure.

Implementation of appropriate measures to restrict exposure will be the responsibility of the governing authority of the affected body of water. If the governing authority chooses to post or close the body of water, KDHE can provide examples of informational, watch, warning or closure signs.

A Public Health Watch will be issued when the microcystin toxin concentration is detectable at a concentration of 4 µg/L to less than 20 µg/L or cyanobacterial cell counts are 80,000 to less than 250,000 cells/ml. A Public Health Watch includes posting of signs at beaches, marinas, boat ramps and other points of public access to the body of water. The Public Health Watch will indicate that harmful algae are present and that the body of water may be unsafe for people and animals. The Public Health Watch will also describe the symptoms of cyanobacterial poisoning, what to do in case of exposure to a cyanobacteria bloom and who to call in case of illness potentially associated with exposure. The Public Health Watch will discourage people from having full body contact (e.g., swimming, water or jet skiing, etc.) in areas of the lake with a visible bloom and allowing their pets to drink or swim in the water. Swimming, skiing, wading, tubing and other contact recreation may occur in portions of the lake without a bloom. Boating and fishing are acceptable provided that, if body contact does occur with the affected water, that exposed areas be washed with clean water as soon as possible. If fish are caught during a Public Health Watch, the fish should be properly cleaned and have internal organs removed before eating. If water from the lake is used for irrigation, people should avoid the spray, thoroughly wash fruits or vegetables in clean water, and not allow livestock to drink the irrigation water. In addition, a Health Alert Network (HAN) message will be sent to all local health departments, physicians, veterinarians and hospitals to provide them with advance notification of the HAB, prior to the Public Health Watch being placed on KDHE's HAB website. Local Health departments, physicians, veterinarians and hospitals are asked to report adverse health events associated with cyanobacteria toxin poisoning to the KDHE Infectious Disease Epidemiology and Response section. Also, any public water suppliers with intakes in the affected water body or downstream of the water body will be notified.

A Public Health Warning will be issued when microcystin toxin concentrations are greater than or equal to 20µg/L or cyanobacterial counts are greater than or equal to 250,000 cells/ml. A Public Health Warning may also be issued if there is verified documentation of a visible, pervasive cyanobacterial scum present. A Public Health Warning will indicate that harmful algae are present at a level considered unsafe for people and animals. A Public Health Warning includes all of the actions under a Public Health Watch with the addition of any contact with water is considered a high risk and should be restricted, including swimming, wading, water or jet skiing. Boating should be conducted to limit the

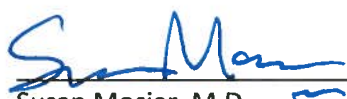
spraying of aerosols that would create the potential for the inhalation of affected water. When microcystin toxin concentrations exceed 2,000 µg/L or cyanobacteria cell counts are greater than 10,000,000 cells/ml, then it is recommended that all in-lake recreation cease and that picnic, camping and other public land activities adjacent to affected waters be closed. A media release will be issued to the public containing all lakes under a Public Health Warning and public water suppliers with intakes in the water body affected will be notified.

5. SAMPLING

A body of water with a Public Health Watch will be tested by KDHE on a regular basis and in a consistent manner. The Public Health Watch will remain in effect until the cyanobacterial concentrations are less than 80,000 cells/ml at all sampling sites and microcystin toxin concentrations are less than 4µg/L at all sample sites.

A body of water with a Public Health Warning will be tested by KDHE on a regular basis and in a consistent manner. The Public Health Warning will remain in effect until the cyanobacterial concentrations are less than 250,000 cells/ml at all sample sites for at least one week and concentrations of microcystin toxin concentrations are less than 20 µg/L for two consecutive weeks at all sample sites. Bodies of water that fall below these levels and within these time periods may still not completely come off of a public health protection notification, but may be reduced to a “Watch” level. The Public Health Watch recommendations should then be followed.

Condition	Alert Level	Recommendation
<ul style="list-style-type: none"> Microcystin toxin concentration < 4 µg/L <p><u>And</u></p> <ul style="list-style-type: none"> Cyanobacteria concentration < 80,000 cells/ml 	✓ None	✓ None
<ul style="list-style-type: none"> Microcystin toxin concentration ≥ 4 µg/L to <20 µg/L <p><u>Or</u></p> <ul style="list-style-type: none"> Cyanobacteria concentration 80,000 cells/ml to < 250,000 cells/ml 	✓ Public Health Watch	<ul style="list-style-type: none"> ✓ Post Public Health Watch signage ✓ Discourage direct contact with the affected portions of the body of water ✓ Notify appropriate local health departments, healthcare providers, and veterinarians ✓ Notify public water suppliers with intakes in the affected water body as well as those with water intakes downstream of the water body ✓ Post on KDHE HAB website
<ul style="list-style-type: none"> Microcystin toxin concentration ≥ 20 µg/L to 2,000 µg/L <p><u>Or</u></p> <ul style="list-style-type: none"> Cyanobacteria concentration ≥ 250,000 cells/ml to ≤ 10,000,000 cells/ml 	✓ Public Health Warning	<ul style="list-style-type: none"> ✓ Post Public Health Warning signage ✓ Restricting direct contact with the affected body of water ✓ Notify appropriate local health departments, healthcare providers, and veterinarian ✓ Notify public water suppliers with intakes in the affected water body as well as those with water intakes downstream of the water body ✓ Issue media release
<ul style="list-style-type: none"> Microcystin toxin concentration > 2,000 µg/L <p><u>Or</u></p> <ul style="list-style-type: none"> Cyanobacteria concentration > 10,000,000 cell/ml 	✓ Recommended Lake Closure	<ul style="list-style-type: none"> ✓ Recommended that recreation cease and that picnic, camping and other public land activities adjacent to affected waters be closed



Susan Mosier, M.D.
Acting Secretary



Date